CLAIMS:

What is claimed is:

1. A component mounting system comprising:

a) a ball which is adapted to be fixed to a component to be aligned, the ball and component together forming a ball-and-component assembly;

b) a socket into which the ball-and-component assembly is placed;

c) a collar which is adapted to be mounted to the socket, whereby the socket and collar capture the ball-and-component assembly between them, the collar also having springs which make contact with the ball portion of the ball-and-component assembly whereby the assembly is relative free to pivot into angular alignment but is relatively fixed translationally, the springs being adapted to be attached to the ball portion of the ball-and-component assembly when the assembly has been properly aligned.

2. The component mounting system of claim 1 wherein the springs are adapted to be laser-welded to the ball.

3. The component mounting system of claim 1 wherein the socket comprises raised features about the socket's inner perimeter whereby the ball-and-component assembly can be more freely pivoted when captured between the collar and the socket.

4. The component mounting system of claim 3 wherein the raised features are ball bearings mounted into the socket.

5. The component mounting system of claim 3 wherein the raised features are raised surfaces of the socket.

6. The component mounting system of claim 3 wherein the ball is stainless steel.

7. The component mounting system of claim 6 wherein the raised features are stainless steel.

8. The component mounting system of claim 6 wherein the raised features are brass.

9. The component mounting system of claim 6 wherein the raised features are tetrafluoroethylene.

10. The component mounting system of claim 1 wherein the component to be mounted is an optical component.

11. The component mounting system of claim 10 wherein the optical component is a collimator.

12. The component mounting system of claim 1 wherein the socket, collar, and ball are formed of the same material.

13. The component mounting system of claim 1 wherein the socket, collar, and ball are formed of stainless steel.

14. The component mounting system of claim 1 wherein the component to be mounted is selected from the group consisting of collimators, lasers, lenses, and spatial light modulators.

15. The component mounting system of claim 1 wherein the springs are shaped like fins which protrude from the collar.

16. A component mounting system comprising:

a) a ball which is adapted to be fixed to a component to be aligned, the ball and component together forming a ball-and-component assembly;

b) a socket having a circular opening into which the ball-and-component assembly may be placed, the socket comprising raised features located symmetrically about the inner circumference of its circular opening;

c) a collar which is adapted to be mounted to the socket, the collar also having a circular opening therein, whereby the socket and collar are adapted to capture the ball-and-component assembly within their respective circular openings, the collar also having springs that are located generally symmetrically about the circular opening wherein the springs are adapted to make contact with the ball portion of the ball-and-component assembly, whereby the assembly may be pivotally aligned when captured by the socket and collar but is relatively fixed translationally, wherein the springs being adapted to be

attached, after alignment, to the ball portion of the ball-and-component assembly to hold the assembly in place.

17. The component mounting system wherein the springs are shaped like fins which protrude from the collar.

18. A method for aligning an optical component, the method comprising:

a) affixing the optical component to a ball to form a ball-and-component assembly;

b) placing the ball-and-component assembly into a socket;

c) fastening a collar to the socket, capturing the ball-and-component assembly within the collar/socket assembly, the collar having springs that are mechanically biased against the ball portion of the ball-and-component assembly;

d) pivoting the ball-and-component assembly into position; and

e) affixing the springs to the ball portion of the ball-and-component assembly, thereby fixing the pivotal alignment of the ball-and-component assembly relative to the collar/socket assembly.

19. The method of claim 18 wherein a beam of light exits from the optical component in a direction fixed by the pivotal alignment of the optical component and further comprising:

a) placing an optical sensor at a spot terminating a path from the optical component;

b) measuring the intensity of the optical signal received at the optical sensor;

c) continuing the pivoting of the ball-and-component assembly until the intensity of the received optical signal is generally at a maximum.

20. The method of claim 19 wherein the affixing of the springs to the ball is accomplished by welding.

21. The method of claim 20 wherein the welding is laser welding.